REMARKS

This application pertains to a novel heat-sealable composite film comprising a multi-ply heat sealable layer and a substrate.

The heat sealable layer has an outer ply (b) and, between the outer ply (b) and the substrate, also has at least one inner ply (i).

The at least one inner ply (i) has a higher melt flow rate (MFR) than the outer ply (b).

With this unique combination of an outer ply (b) and inner ply (i), with (i) having a greater melt flow rate than the outer ply (b), Applicants are able to achieve a previously unattainable combination of elevated hot tack and good channel impermeability.

The key to achieving this unique combination of properties resides in Applicants' combination of an outer heat sealing ply with an inner ply which has a higher MFR than the outer heat sealing ply.

Claims 2-10, 12-24, and 26-31 are pending. Claim 31 is the main claim.

Claims 31, 2, 3, 6-10, 13, 15, 17, 18, 19, 20 and 23 stand rejected under 35 USC 103(a) as obvious over Dobreski (US 5,334,428).

The Examiner acknowledges that Dobreski teaches a coextruded stretch wrap film comprising two outer layers and at least one intermediate layer.

The intermediate layer has a lower melt index than the outer layer.

The Examiner contends that, since Dobreski's film is a cling film, the film may cling to itself and, when the film clings to itself, somehow Applicants' film will be arrived at.

Dobreski is specifically concerned with a three layer coextruded film, having an intermediate layer of low melt index and two outer layers of high melt index (column 1, lines 8-13).

The films are said to be useful for the wrapping of palletized loads.

Schematically, Dobreski's film might be represented by the following layer sequence

o//i//o

where "o" represents an outer layer and "i" represents the intermediate layer. Layer "I" has a lower melt index than layers "o".

The Examiner refers to an "overwrapped" Dobreski film, and bases his argument on a sequence of layers that he thinks will be achieved by such overwrapping.

Overwrapping Dobreski's film over itself does not create a new film, since the two adjacent films are not connected to each other permanently, such as are the plies of Applicants' composite film, but can be separated relatively easily from each other. Therefore, the overwrapped film proposed by the Examiner is not comparable to Applicants' composite film.

Even if, however, as the Examiner proposes, two sheets of Dobreski's film were brought together and "clung" together, the sequence would be

o//i//o//o//i//o.

The outer "o" layer would have a higher melt index than the intermediate "i" layer.

This is the opposite of Applicants' sequence, wherein the interior layer (i) has a higher melt flow rate than the outer layer (b).

The inner "o" layers, of course, would have the same melt flow index as the outer "o" layers.

Thus, even assuming the Examiner's hypothetical example, no inner layer would have a higher melt index than the outer layer, and Applicants' claim would not be met.

The Examiner, in the face of the above explanation still contends that:

> "The two outer layers clung together (herein relied upon to read on the claimed "inner ply") would have a melt index of greater than about 2.5, and the intermediate layers (herein relied upon to read on the claimed "outer ply") would have a melt index of 0.5-2.5".

The Examiner's explanation does not make any sense.

Specifically, the Examiner's contention that "... the intermediate layers (herein relied upon to read on the claimed "outer ply)..." is simply technically incorrect.

In the Examiner's hypothetical, the "intermediate" layer (illustrated as "i" above) will always be "intermediate" layer, and can never be "outer layer."

The outer layer of Dobreski's film, whether taken as a single film or two sheets of film "clung" to each other, will still be the high melt index layer "o".

Accordingly, Applicants' claims cannot fairly be seen as obvious over Dobreski, and the rejection of claims 31, 2, 3, 6-10, 13, 15, 17, 18, 19, 20 and 23 under 35 USC 103(a) as obvious over Dobreski (US 5,334,428) should now be withdrawn.

Claims 26-29 stand rejected under 35 USC 103(a) as obvious over Dobreski (US 5,334,428) as applied above, and further in view of Simmons (US 5,273,809).

The Examiner relies on Simmons for a teaching of various substrates.

It is clear, however, that no matter what substrate the Examiner would propose to combine with Dobreski, the substrate would not overcome any of the deficiencies

discussed above.

In addition, if Dobreski's film were to be combined with Simmons' "non-cling" layers, the very hypothetical combined "cling" film that the Examiner relies on with respect to Dobreski, would be destroyed.

Were Dobreski's film attached to one of Simmons' non-cling layers, clearly the outer layer would once again have a higher MFR than the intermediate layer.

Stated differently, the features the Examiner relied on in making the rejection over Dobreski above would not be present any more if Dobreski were to be combined with Simmons, as the Examiner suggests.

If the Examiner persists in this rejection, he is respectfully asked to explain which layer he sees as an outer layer, which layer he sees as the inner layer, and how it is that he sees such inner layer as having a higher melt flow rate than the outer layer.

Respectfully, the rejection of claims 26-29 under 35 USC 103(a) as unpatentable over Dobreski as applied above in view of Simmons is technically impossible, as Dobreski cannot be applied as above and combined with Simmons at the same time. The combination cannot be applied as Dobreski alone was, as the very premise the Examiner relied upon in his rejection over Dobreski alone would no longer be present.

The rejection of claims 26-29 under 35 USC 103(a) as obvious over Dobreski as applied to claims 31, 2, 3, 6-10, 13, 15, 17, 18, 19, 20 and 23 above and further in view of Simmons (US 5,273,809) should be withdrawn.

Claim 16 stands rejected under 35 USC 103(a) as obvious over Dobreski as applied to claims 31, 2, 3, 6-10, 13, 15, 17, 18, 19, 20 and 23.

The Examiner contends that it would be obvious to use a metallocene catalyst.

No catalyst, how ver, will ever overcome the deficiencies of Dobreski, as discussed above.

Claims 31, 2-10, 12, 13, 14, 17, 18, 19, 23, 26, 27 and 28 stand rejected under 35 USC 103(a) as obvious over Paleari (US 6,110,570) in view of Hodgson (US 5,206,075).

Paleari teaches a multilayer heat-shrinkable film having the structure

d//r//b//a.

Layer (b) has a fractional melt index (column 2, lines 1-8).

Layer (d) also has a fractional melt index.

Layer (a) is a heat sealable layer, but no melt index is specified.

Paleari defines "fractional melt index" as meaning a melt index of less than 1 (column 3, line 14-17).

Inner layer (c) preferably has a melt index not higher than 3.0 g/10'.

Additional layers may follow layer (d) (column 7, lines 15-20).

In a preferred embodiment, Paleari's structure comprises at least 5 layers, wherein an outer layer (e) follows layer (d) (column 7, lines 65-68).

In another embodiment, two layers (f) and (g) may follow layer (d) (column 8, lines 16-20).

Heat-sealable layer (a) can comprise the copolymers described in US 5,306,025 (Hodgson) (column 6, line 29).

In Paleari's examples, such as example 1, the heat sealable layer has a relatively higher melt index of 6 g/10 min.

Clearly, any person skilled in the art reading Paleari would understand that

Paleari's outer heat sealable layer (a) has a higher melt flow rate than Paleari's inner layer (b). This is the opposite of what is claimed by Applicants!

If the sealing layer of Hodgson was used as Paleari's heat seal layer (a), such layer (a) would than have an even higher melt flow rate. Contrary to the Examiner's reading, Hodgson does not disclose a melt flow index of 0.5-7.5 g/10 min. Hodgson actually discloses a melt flow index which is 100 times higher! In the abstract to which the Examiner refers, the melt flow index is given as 0.5 dg/min to 7.5 dg/min. One dg = 10 g. Thus, Hodgson's lowest rate is 5 g/min or 50 g/10 min!

In such case, the outer heat sealable layer would have a melt flow rate which is much greater than the inner layer, taking the Paleari/Hodgson combination even further away from Applicants' film.

The Examiner comments that

> "When the film is heat sealed, the examiner takes the position that said heat seal layer (the layer with the higher melt flow index) is adjacent to a substrate."

The Examiner's "position" is not prior art, and in any case, would make absolutely no technical sense. A heat sealing layer is always an outer layer. If the heat sealing layer were adjacent to a substrate, it would lose its function as a heat sealing layer.

Neither Paleari nor any other person skilled in the art suggest, or ever would suggest, that a film be made by placing a layer sequence such as that taught by Paleari against a substrate with the heat sealing layer being placed against the substrate.

This makes no sense - the heat sealing layer must be exposed as an outer layer in order to be used for heat sealing.

Paleari teaches that any "additional" i.e., substrate layer, be attached to or substituted for layer (d), which is not a heat sealable layer.

In this regard, it is respectfully pointed out that Applicants' claims are directed to a heat-sealable composite film wherein the outer ply (of the heat sealable film) has a lower MFR than the inner ply. The hypothetical film that the Examiner would create by applying Paleari's heat sealable layer against a substrate (which no one would ever do) will not result in a heat sealable film. Since the heat sealable layer would be covered by the substrate, it would not be exposed for heat sealing, and the film would no longer be heat sealable.

In the event the Examiner, in his hypothetical, was considering a situation where the film is actually hot-sealed to a substrate, it is respectfully submitted that the result would not be a "heat sealable" film, as claimed by applicants. Once hot sealed, it is no longer heat sealable. In addition, those skilled in the art know that during the hot sealing procedure, the properties of the film in the heat-sealed area, especially the properties of the plies being sealed to each other, are changed. During hot sealing, the various polymers of the plies being hot sealed to each other are mixed during their quasi molten status during the sealing step. This means, of course, that the MFR values of the various polymers are substantially changed because of this mixing.

Furthermore, the Examiner's conclusion that the melt flow of Paleari's preferred heat seal composition (1 g/10 min) is three times greater than the preferred melt flow of the inner layer composition (0.35 g/10 min) would seem to make Applicants point - i.e., that Paleari teaches that the outer layer has a higher melt flow rate than the intermediate layer, whereas in Applicants' claims, the intermediate layer (i) has a higher

melt flow rate than the outer heat sealable layer (b).

The Examiner also indicates, at page 5 of the Office Action of September 27, 2002 that Paleari teaches in example 1 a laminate wherein the melt flow index of the inner layer are all lower than the melt index of the heat sealable layer.

Applicants' inner plies have higher melt flow indexes than the outer heat seal layer however.

It would therefore seem that the Examiner recognizes that Paleari teaches away from Applicants' claims.

The rejection of claims 31, 2-10, 12, 13, 14, 17, 18, 19, 23, 26, 27 and 28 under 35 USC 103(a) as obvious over Paleari in view of Hodgson should accordingly be withdrawn.

Claims 31, 2-11, 13, 15, 17-21, 23, 26-28 and 30 stand rejected under 35 USC 103(a) as obvious over Chum (US 3,089,321).

Applicants have previously pointed out that Chum teaches that the inner layer should have a lower MFR than that of the outer layer, which would be the exact opposite of what Applicants claim.

To this the Examiner responds that "inner" and "outer" are relative terms and that Chum teaches a laminate comprising the same layers arranged in the same relative position with respect to each other.

This is not correct.

Applicants' claims are directed to a heat sealable film, comprising a multi-ply heat sealable layer and a substrate, wherein the outer ply (b) has a lower MFR than the inner ply (i), and (i) is between (b) and the substrate.

It is clear from Chum that his outer layer is A, and that this is the heat sealing layer which must always be exposed for heat sealing. Chum's "core" layer B is an inner layer, and is the layer that would be adjacent to any substrate.

Chum does not teach the same layer arranged in the same position as do applicants because Chum's core layer has a lower MFR than the outer layer A. When applied to a substrate, A would always be the outer layer, as shown by Chum's examples.

There is absolutely nothing in Chum that would lead those skilled in the art to do anything else than arrange his heat seal layer on the outside. Chum's layer B would never be an outer layer, when applied to a substrate.

To be heat sealable, a film must have a heat sealable layer on the outside.

No person reading Chum would ever be led to Applicants novel heat sealable composite film, and the rejection of claims 31, 2-11, 13, 15, 17-21, 23, 26-28 and 30 under 35 USC 103(a) as obvious over Chum should now be withdrawn.

Claim 24 stands rejected under 35 USC 103(a) as obvious over Chum.

The Examiner asserts that Chum provides for a pigment and that calcium carbonate is known in the Art as a pigment. This does not however suggest the use of calcium carbonate in Applicants' film and, more important, does not in any way compensate for the deficiencies in the Chum reference that are pointed out above.

In this regard, the foregoing comments regarding the rejection of Claims 31, etc. over Chum apply equally well to this rejection.

Chum neither teaches nor suggests a heat sealable laminate wherein the outer ply has lower MFR than the inner ply.

The rejection of Claim 24 under 35 USC 103(a) as obvious over Chum should therefore now be withdrawn.

In view of the above amendments and remarks, it is believed that claims 2-10, 12-24 and 26-31 are now in condition for allowance. Reconsideration of said claims by the Examiner is respectfully requested and the allowance thereof is courteously solicited.

CONDITIONAL PETITION FOR EXTENSION OF TIME

If entry and consideration of the amendments above requires an extension of time, Applicants respectfully request that this be considered a petition therefor. The Assistant Commissioner is authorized to charge any fee(s) due in this connection to Deposit Account No. 14-1263.

ADDITIONAL FEE

Please charge any insufficiency of fees, or credit any excess, to Deposit Account No. 14-1263.

Respectfully submitted,

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I hereby certify that this correspondence is being transmitted via facsimile, no. 703-872-9311 to the United States Patent and Trademark Office, addressed to: Mail Stop AF Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on October 30, 2003.

By Julie Harting
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